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*Louis H. Mayo*

**SOCIAL IMPACT EVALUATION**

Some Implications of  
the Specific Decisional Context Approach for  
Anticipatory Project Assessment  
with special reference to Available Alternatives  
and to Techniques of Evaluating the Social Impacts  
of the Anticipated Effects of such Alternatives

November 1972

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This paper was presented at the NATO Advanced Study Institute on Technology Assessment (which was co-sponsored by the Institute for the Management of Technology, Milan, Italy, and the National Science Foundation, Washington, D.C.) at Gardone Riviera, Italy, during September 18-29, 1972. It is an abstract of a far more comprehensive treatment of the Anticipatory Project Assessment Function now in Preparation by the author.

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- Scientific Method, Adversary Process, and Technology Assessment (1969)
- Legal-Jurisdictional-Operational Implications of a Congressional Technology Assessment Component (1969)
- Social Impacts of Civil Aviation (Co-author 1970)
- The Contextual Approach to Technology Assessment: Implications for "One-Factor-Fix" Solutions to Complex Social Problems (1971)
- Some Implications of the Technology Assessment Function for the Effective Public Decision-Making Process (1971)
- Laws and Regulatory Schemes for Noise Abatement (Co-author 1971)
- Social Impact Evaluation (1972)
- Evaluative Jurisprudence (Experimental Class Materials - 1972)

## CONTENTS

Chapter	Page
I. Control over Social Change through Anticipatory Project Assessment -----	1
II. The National Environmental Policy Act of 1969: A Framework for Examining the Anticipatory Project Assessment Function -----	3
III. Relevance of Social Justice Concepts for Social Impact Evaluation of Effects -----	10
IV. Social Impact Evaluation in Legal Process -----	19
V. Dependence of Social Impact Evaluation on the Specific Decisional Context	
A. Relevance of Decisional Context Approach to APA -----	25
B. Specific Environmental Noise Abatement Contexts	33
1. Judicial Arena (34)	
2. Regulatory Arena (35)	
3. Metropolitan Administrative Arena (36)	
4. Congressional-Legislative/Administrative Arena (37)	
VI. Implications of Specific Decisional Context Approach for the Anticipatory Assessment Function -----	38
Selected Bibliography -----	46-49

I.                   CONTROL OVER SOCIAL CHANGE  
THROUGH ANTICIPATORY PROJECT ASSESSMENT

It seems a plausible assumption that man has always, to a greater or lesser degree, undertaken to grasp and maintain some control over his environment through anticipatory assessments of proposed actions. Two basic questions are involved: 1) What changes in the social environment will be brought about by the contemplated action which would not otherwise occur? and 2) What will be the social significance of such changes?

While the effort to impose some measure of control over the direction and rate of social change has a long history, the prospective evaluative function has come to unusual prominence in the past decade in large measure as a result of the perception of incompatibility between uncritical expansion of industrial-consumption practices and the new urgency for access to and enjoyment of a much broader spectrum of social values. The resulting need for more careful allocation and application of available resources to pressing, and competing, social needs is evident. This being so, we are understandably becoming more concerned with the inability of influential decision-making entities to identify and evaluate the full range of consequences which will or may flow from new public or public/private initiatives - technological or otherwise.

Anticipatory Project Assessment, whether expressed as policy analysis, social impact evaluation, or technology assessment, can be characterized as the capacity to perform, and the disposition to take into account in relevant decisional arenas, the following operations:

- Identification of the significant effects (necessary or inevitable, probable, or possible) which will result from the introduction of a specified project configuration into alternative projected future social environments during the planning, implementation and operational stages.
- Evaluation of such Effects in terms of Social Impacts on affected participants and social value-institutional processes in accord with specified concepts/standards of Social Justice, i.e., schemes of social value weight and distribution.

Presumably, from the perspective of the accountable, public sector decision maker, this evaluative function will contribute an appreciable increment of control over the direction and rate of social change by: 1) facilitating judgments as to when or when not to take particular innovative actions; 2) providing insights into the advisability of taking major, all-out efforts as contrasted with incremental response to changing conditions; and by 3) suggesting the more preferable project configurations (alternative means) to apply to the achievement of objectives consistent with intended (or acceptable) concepts of Social Justice.

## II. THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969: A FRAMEWORK FOR EXAMINING THE ANTICIPATORY PROJECT ASSESSMENT FUNCTION

The National Environmental Policy Act of 1969 (NEPA 1969) provides a useful framework for evaluating the prospective development of the Anticipatory Project Assessment Function in that the conditions and trends previously noted will have considerable effect on its implementation. This Act would seem to have substantial utility as an instrument for moderating the direction and rate of technological innovation as a component of social change. It also has considerable potential for advancing the public policy analytical capability of the nation. First, however, we should consider the possibility that the §102(2)(C) "environmental impact statement" requirement for all major Federal actions could be a delusion to the extent it becomes form rather than substance. But assuming that this requirement can be a tremendously potent instrument for anticipatory project assessment, one must look closely at the prospects for the development of this potential. Environmental impact statements have been required since January 1, 1970, it is to be noted, but without benefit of the organizational resources and conceptual and analytical skills which NEPA explicitly recognizes to be necessary. §102(2)(A) directs agencies to:

utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making which may have an impact on man's environment;

and §102(2)(B) directs that agencies develop methods, procedures, and techniques

. . . which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations; . . .

The establishment of an assessment requirement by NEPA has some initial value as a means of focusing attention on the assessment function and in creating a "market" for a needed capability as well as project evaluation outcomes. However, it remains a fair and critical question as to how we can reasonably expect adequate anticipatory assessment outcomes in form of §102(2)(C) statements when the resources made available for developing the requisite analytical capability remain at a precariously low level. Perhaps only catastrophes, persistent court actions to implement legislation requiring impact statements, and angry citizen protests of particular projects (with resulting delay and increased costs) will eventually stimulate the necessary support for an adequate anticipatory project assessment function.

For present purposes, however, let us assume that resources will be made available for APA and examine some of the questions which will arise in the analytical operations of an assessment function. Attention will be directed to the implications of §102(2)(B) since this subsection refers to the analytical component of the assessment process. The injunction that Federal agencies develop techniques which will "insure that presently

unquantified environmental amenities and values . . . be given appropriate consideration," presumably in a rational process of decision, obviously obscures and ignores a great deal more than it illuminates. For example, §102(2)(B) refers to "environmental amenities and values" which must mean that certain "values" should be given explicit recognition and some measurable degree of social significance in the public decision process. If so, then §102(2)(B) refers to only the final step in a rather intricate methodology of anticipatory assessment. §102(2)(B) suggests no distinction between the effects (changes or consequences) which might flow from the introduction of a technological application into a future social environment, the widely varying types of effects, the participants and social interests which might be affected by each change, and the social impact to be attached to each of these changes on participants and value-institutional processes. Further, the task of giving some measurable or operational significance to affected social interests will vary with the characteristics of the Decisional Context.

Put otherwise, §102(2)(B) is without discrimination as to Decisional Context, stating only that techniques be developed so that "presently unquantified environmental amenities and values may be given appropriate consideration in decision making." (Italics supplied) The same effect, as for example noise from transportation systems, will clearly differ with the decisional situation. Noise can be measured or quantified in physical

terms on a decibel scale and by various facilitating constructs such as NEF and CNEL. Further measurable dimensions can be given to noise effects by such means as determining the number of people residing within a given NEF contour. While this is a means of measuring the magnitude of the noise effect it is not an evaluation of the social significance of the noise or conversely, the degree of social interest in noise abatement. The social significance will depend upon a number of factors such as competing social interests involved in the particular decision context. One might plausibly take the position that no social value can be "quantified" in terms of operational social significance without relating it to a specific decisional situation.

Presumably, the underlying rationale of §102(2)(B) is that by giving some measurable dimensions to environmental values and amenities an ultimate decision on a proposed "major Federal action" can be based on an approximate social benefit/cost assessment. Some court cases have construed the purpose of §102(2)(C) statements as support for such decisions although the NEPA is basically a "full disclosure law" rather than a decision making mechanism. As was stated by the D.C. Circuit in Calvert Cliffs' Coordinating Committee v. AEC:

The sweep of NEPA is extraordinarily broad, compelling consideration of any and all types of environmental impact of federal action.

However, in the same opinion the court stated that

NEPA mandates a case-by-case balancing judgment on the part of federal agencies. In each individual case, the particular economic and technical benefits of planned action must be assessed and then weighed against the environmental costs; alternatives must be considered which would affect the balance of values.

and in Environmental Defense Fund, Inc. v. Corps of Engineers, the court asserted that it was the intent of the Congress through NEPA to require the agencies of the Federal government to objectively evaluate all of their projects, regardless of how much money has already been spent thereon and regardless of the degree of completion of work. (Emphasis added).

The language of certain court opinions would indicate that the Congressional intent with respect to NEPA was to assure a total social impact assessment of particular projects. However, it is also clear that the courts consider the political branches of government to be the final decision makers. The opinions also tend to recognize that elements of "judgment" must be left with the ultimate political decision makers. As noted in the EDF v. Corps of Engineers, the Court stated that:

The methods of calculating cost-benefit ratios are innumerable and in many cases esoteric. The Court's judgment as to sound procedures in this regard might well not be in accord with the judgment of Congress.

Secretary of HEW Elliot L. Richardson has stated in this connection, we do need to "be able to measure the cost of each alternative (but) our skills in this area are seriously underdeveloped." He continues:

The hard choices, in the end, are bound to depend on some combination of values and instincts - and, indeed, it is precisely because the content of choice cannot be reduced to a mathematical equation that we need the political forum to reach the final, most difficult decisions.

To recognize this, however, reinforces the importance of being honest and explicit as possible in articulating the non-measurable considerations that transcend the limits of objective analysis.

If we accept the Richardson proposition that we need improved social cost/benefit analysis in order better to clarify policy options for decision makers but that there are limits to the analytical approach, then certain questions arise. For example, what conditions, including analytical disabilities, impose such limits? Is it the unavoidable uncertainty associated with the projection of future social environments? Is it a lack of ability to identify the effects (consequences or changes) which will result from the introduction of a proposed project into a future social environment? Is it a lack of ability to measure the probability and magnitude of such effects if identified? Is it due to a lack of ability to determine the interaction of effects (does a given effect reinforce or reduce other effects in the decisional context)? Is it a lack of conceptual ability to determine when effects must be aggregated or isolated and fragmented in order to render them "operational" for purposes of evaluating their social impacts? Is it a lack of consensus on social values or on priority social needs which precludes accord in the calculation of the social impacts of the effects of the proposed action?

The foregoing questions suggest deficiencies in future-oriented conceptual thinking and in analytical skills but are hardly satisfactory operational criteria for determining the "limits of analysis" with respect to any given problem assessment. It is likely as indicated throughout this paper that the "limits of analysis" will differ with each specific decisional context when measured, for example, by the extent to which "demonstrable data" can be effectively applied to the identification of effects of proposed projects and to approximation of their probability and magnitude or to the establishment of the conditions under which and the parameters within which realistic discretion can be exercised (or differing social value positions registered) in the establishment of normative standards. Or the question might be one of determining what effort and expense is justified in acquiring additional "demonstrable data" for a specific assessment. Will the incremental contribution such data will make to a rational process of decision justify its cost? For instance, will it reduce elements of uncertainty? When data and analysis can no longer contribute to the reduction of uncertainty as to effect identification and measurement or to the social impact evaluation of such effects or otherwise to the clarification of optional choices, then the assessing entity must resort to other less objective techniques and procedures, including various forms of adversarial system.

III. RELEVANCE OF SOCIAL JUSTICE CONCEPTS  
FOR SOCIAL IMPACT EVALUATION OF EFFECTS

Why must the assessor be concerned with notions of social justice? The sufficient reason is that whether effects of a given action (and their distribution) are considered social benefits or social costs and to what extent will depend upon, in varying degree, the social value perspective (notion(s) of social justice) of the participant evaluating the action outcome. By expressing, simplistically, the social impact of an identified effect as the product of the probability of the occurrence of the effect (resulting change, consequence), the magnitude of the effect (by relevant dimensions of measurement), and the degree of social desirability (or undesirability) of the effect, then it is evident that techniques for giving some measurable dimension to social desirability must be applied in the process of anticipatory project assessment.

Alternative concepts of social justice reflect different preferences as to social value weight and distribution. Hence, the degree of social desirability attached to the social value (or values) associated with a given effect will differ with the social justice concepts invoked by affected participants. It is recognized that the social value orientations of most participants may be only partially explicit and by no means constitute a comprehensive rationale of political system.

Other aspects of the relationship of social justice concepts to anticipatory project assessment should be recognized in

addition to the fact that participants will make divergent evaluations of the effects of actions and projects reflecting their differing social value perspectives. In our pluralistic society there are numerous generally accepted notions of social justice including those prescribed in the Constitutional structure and otherwise formally sanctioned. The relevance or applicability of such concepts will vary somewhat with the institutional arena (courts, legislature, regulatory agency, executive, etc.) and the precise decisional context (including the arena, the issue or proposed action, the participants, the social values involved, and the alternatives open to the decisional entity). Further, what constitutes compliance with a specified social justice concept (which may have general relevance in various decisional arenas) will also vary with the precise context.

In a public decision process with a strong adversarial component various participants will advance different concepts or standards of social justice, often expressed narrowly and explicitly in terms of specific social interests which support a preferred decisional outcome. Further, anticipatory project assessments made by the diverse participants in the public decision process with respect to a given project may range from the most exclusive (and narrowly focused, often for purely partisan purposes) to the most inclusive (undertaken from an impartial perspective and designed to include consideration of

all affected participants and value-institutional processes). The essential point is that inclusive total social impact assessments of given projects inevitably require explicitness in selecting and identifying the social justice concept or standard (or combination thereof) by which the social costs and benefits of the assessment outcome are to be measured - if the assessment is to include social impact evaluation in addition to mere effect identification. It would not seem inaccurate to state that this aspect of assessment methodology has received scant systematic attention to date.

This is not presumed to be a simple task as the frustrations of the National Academy of Engineering's Committee on Telecommunications amply illustrate in the Committee's effort to define the public interest with respect to electromagnetic-spectrum management. The Report states in part:

The ideal system, as defined for this search, would be a systematic procedure that could be applied to determine and assess the social and economic values associated with the spectrum management decisions. The answers obtained by such a system should be independent of those carrying out the procedures. The decisions indicated should be in the public interest and should contribute to the general welfare. Our search found no such system. It was concluded that some type of formula employing numerical values represented the only hope, but the study led to the conclusion that such an ideal system does not exist nor can it be formulated. The most basic reason for the failure of a formula approach is mathematical. A function cannot be simultaneously maximized for several dependent variables. The greatest good for the greatest number of people, or the greatest value for the least cost, simply does not exist.

This statement of exasperation is understandable under the

circumstances but does little to further the development of an adequate policy evaluative function. The Committee did consider that its work was "to a degree. . . a subcategory of technology assessment" and found its experience "well expressed" by the following paragraph of the National Academy of Sciences Report on Technology: Processes of Assessment and Choice:

As in any problem calling for evaluation of a proposed resource allocation or distribution, the assessment of a contemplated technological development raises vexing issues of welfare economics, political theory, and ethics. Economists, philosophers, and lawyers have debated these matters among themselves and with one another for generations. Surely it would be unrealistic to suppose that this report could somehow resolve them.

Nevertheless, this analytical challenge cannot be escaped. It is crucial to the Anticipatory Project Assessment Function.

The Purpose of anticipatory assessment is to clarify policy and project options in terms of their social implications in order that intelligent choices can be made by responsible political decision makers.

Yet, it is apparent that while such fundamental concepts of social justice as promotion of the "general welfare" or "equal protection of the laws" or "fairness" or provision for "maximization of individual autonomy consistent with similar exercise by all" may be prescribed as the guiding social purpose of particular actions or projects, such standards are not usually operationally adequate means of measuring and evaluating the actual outcomes of such projects. The translation of the

more general social justice concepts into explicit social value or social interest schemes will often facilitate the assessment task. Social interest schemes can be useful in suggesting possible consequences of a given action and hence, can contribute to effects identification. Such schemes can also be designed so as to reflect the social value emphasis of alternative concepts of social justice and thereby provide a means of evaluating the social impacts of the consequences of an action.

Nevertheless, should there be any lingering doubts concerning the relevance of social justice concepts to the task of total social impact assessment, reference can be made to selected existing problem areas and emerging policy decisions having clear social justice implications. Any situation involving the allocation of scarce resources raises social justice questions as, for example, selection of criteria for regulating access to the currently inadequate supply of artificial kidney (dialysis) machines, and, more generally, the selection of criteria for allocating "scarce medical care." Apportionment of costs for a given public need raises similar questions. A great variety of situations involving the "safety" factor, frequently placed in a "risk/benefit" framework, directly involve questions of what participants should be protected to what extent and at what cost to whom? The social justice implications of safety measures have been explicitly treated by the National Transportation Safety

Board. The numerous inquiries now being raised with respect to medical ethics and the patient in extremis, as well as inquiries into the implications of genetic engineering, require evaluations which are either explicitly or implicitly based upon some notions (if not systematic schemes) of social justice, and consequently, of what are social benefits, what are social costs, and how they should be distributed. Both the relevance and complexities of social justice considerations are vividly projected by the current efforts to find rational modes of establishing the "value of human life" for application in public policy planning decisions.

Every proposed action or project clearly has social justice implications, since by whatever concept of social justice applied, there will be benefits, there will be costs, and such benefits and costs will be distributed among various groups in society. Those who bear the costs of a given action are frequently not the direct or primary beneficiaries. It is also of the utmost importance to note that alternative means of achieving a specified objective may have quite different consequences for affected participants or even involve radically different groups of participants. The total social impact would thus vary with the means used to reach the specified objective. This being so, notions of social justice may strongly influence the alternative means selected.

Perhaps in most situations of anticipatory project assessment some guidance will be given the assessment entity as to the social justice concept (project objectives or criteria) to be applied to social impact evaluation. For example, statutory authority of Federal agencies will provide Statements of Policy as to what is sought to be achieved by projects performed pursuant to such authority. Frequently these policy directives are broad, ambiguous, and may encompass conflicting - if not downright contradictory - policy objectives. However, regulations of agencies and the decisions in the various arenas of legal process may provide a fairly satisfactory scheme of social objectives which can be employed by the assessing entity as social impact evaluative criteria. More specifically, Agency guidelines for the submission of Environmental Impact Statements pursuant to NEPA 1969 §102(2)(C) and Agency Requests for Proposals are sources of evaluative criteria.

Occasionally, inclusive, impartial assessment entities may be requested - or undertake on their own initiative - to make an anticipatory assessment of a proposed or potential project without guidance or limitations on criteria to be employed for social impact evaluation. It is then up to the assessing entity to develop or select and posit criteria. Such criteria would most likely reflect the "controlling" norms of the Constitutional framework, cultural traditions, and social practices, though the assessing entity may not

feel obliged to adhere strictly to these constraints. What is required is that the social justice concept employed be made explicit.

The notion of social justice has been introduced to demonstrate the relevance of social value perspective to the analytical operations of anticipatory project assessment, that is, that the evaluation of effects for social significance depends upon the social justice concept adopted for the assessment. While the public decision process in operation is frequently little more than a contest between contending parties asserting narrow, strictly partisan interests, it is certainly obligatory upon our authoritative decisional entities (courts, legislatures, regulatory agencies, administrators, etc.) to apply recognized and acceptable notions of social justice. In any event, this analysis, unless otherwise noted, will proceed from the perspective of such authoritative entities, presumably undertaking to arrive at acceptable public interest outcomes. Further, the assessment function will be viewed from the perspective of an inclusive-oriented entity, committed to providing the authoritative decisional entities with outcomes which will assist such entities to arrive at determinations consistent with specified social justice concepts. Hence, assessment entities, from this perspective, are obligated to produce outcomes in accord with explicit concepts of social justice (whether posited by the entity or otherwise prescribed). Through this approach,

assessment outcomes have meaning for all affected participants. The outcome would not be represented as the preferred course of action by the assessing entity. Its function in the public decision process is to establish an analytical standard by which other alternatives can be evaluated by affected participants in the relevant decisional context.

IV. SOCIAL IMPACT EVALUATION IN LEGAL PROCESS

We have innumerable value-institutional processes in society which are regularly employed to express individual, group, and social preferences in the private sector, including the market system, as well as institutionalized processes for public decisions involving formal prescriptions. §102(2)(B) apparently envisages the development and application of analytically repeatable procedures which can provide useful "measures" of "environmental amenities and values." More broadly, however, it must be the essential import of various "social systems" analytical approaches such as technology assessment (as well as the assumptions underlying the NEPA of 1969 and other recent legislation requiring some form of anticipatory project assessment) that we possess the capacity to plan, implement, operate, monitor, and modify public projects so as to optimize preferred social justice outcomes. If so, then the analytical operations involved in anticipatory project assessment can be most usefully discussed with respect to the utilization of assessment outcomes in the more influential decisional arenas. It is in such decisional contexts that the "demonstrable data" (used broadly to include scientific, technological, economic, social behavioral models, analytical approaches, etc.) will be offered in support of effect identification and measurement and social impact evaluation of such effects. It is in these arenas that

strenuous efforts will be made, arising from a variety of motivations, to distinguish between "factual certainty" and speculation. The adversarial system will inevitably come into play in this process of evaluating the assessment outcome. Further, the adversarial system has a legitimate role in decisional situations where uncertainty as to facts exists especially with respect to "projected facts" (future social environments, resulting changes when the project is introduced, etc.) and whenever there exist differences among affected participants as to what social interests are affected and the extent. It is to be expected that conflicting positions will be expressed with respect to the social interests at stake, the extent to which such interests are advanced or deprived, and that preferred distributions of costs and benefits will be justified or rationalized on the basis of one or more concepts of social justice.

The legal system in its various arenas - judicial, legislative, regulatory, administrative - has always been involved in anticipatory project assessment. However, the analysis of projects in these arenas has for the most part been truncated and unsystematic, failing to take into account all participants and value-institutional processes likely to be affected by a proposed project. This deficiency has contributed to an imbalance in the protection of the full range of social interests as is evident from the environmental pollution problems with which we are now confronted. This situation has also led to

the interest in and demand for more systematic anticipatory project assessment.

It is probably accurate to state that our formal decisional entities have not always made the best use of available "demonstrable data" in support of their decisions. This could have reduced the element of uncertainty and, consequently, uninformed advocacy. Surely, more effective use can be made of "scientifically-based" data and analysis for the purpose of establishing the parameters within which attainable social objectives might be sought, i.e., what social objectives can be achieved through what means within what period of time at what cost. Factual appraisals of conditions and trends may not in themselves define social goals but relevant contextual conditions do control, within limits, what is feasible in what time at what cost.

However, the legal system should not be unduly faulted. Decisions must be made. Furthermore, many techniques for performing analytical operations similar to those required for anticipatory assessment have been developed. These concepts and procedures can be studied with profit by those undertaking anticipatory project assessments. For example, the judiciary, while normally dealing with the reactive effects of existing projects rather than with the assessment of proposed projects, has employed several modes of social impact evaluation.

Much of judicial precedent is a history of the reduction

of "unquantified. . .amenities and values" to measurable, operational, and understandable terms through techniques of comparing the social significance of competing interests or by awarding damages to compensate for harm (value deprivation). The notion of "standing to sue" and the requirement for a "case or controversy" in our Constitutional system reflect a concern for limiting judicial cognizance of claims to litigants who can be clearly associated with a "stake" in the alleged dispute, i.e., an ascertainable social benefit or deprivation related to the issue. However, the courts have also recognized the difficulty of making social value determinations as is illustrated by the doctrine of "consideration" in contracts. The courts do not look to the "adequacy" of the consideration or the comparative value (from a "market" standpoint) of what is given or promised by one party in exchange for a promise by the other party. Within slight limitations, the courts leave it to the parties to determine what is a "fair" or "satisfactory" bargain from their respective standpoints.

Fairly common instances of evaluation by courts of both the social impacts of specific effects and the social significance of competing effects and their associated social interests include nuisance actions (the interference with the use and enjoyment of property), suits for invasion of privacy, disability determinations, and actions involving the "value of human life" under "wrongful death" and "survival" statutes.

Some facets of the latter actions may be reduced to monetary measures such as funeral expenses and the approximate loss of future earnings during the normal life expectancy of one in position of the deceased. Such elements of damages as "pain and suffering" and the "grief" and "emotional distress" of the survivors are not easily amenable to the computational approach. However, judgments in numerous cases include damages for "loss of consortium" and some courts have awarded damages for "loss of enjoyment of life" where an injured person was no longer capable of pursuing activities of special interest. It is iterated time and time again in decisional contexts involving the above types of effects and claims for compensation that whether the claim is cognizable at all in legal process and if so, to what extent in terms of damages, depends upon the circumstances.

While the social impacts of certain effects have sometimes been susceptible of objective, monetary measurement through "calculations," as noted above, other modes of arriving at damages are utilized such as by the use of expert witnesses or by leaving the award to a process of community judgment (as by a jury). In some contexts, precision in social impact evaluation is not necessary in coming to a judgment. In the case of Yoffee v. Pennsylvania Power & Light Co., an action in damages for the death of an aviator whose airplane struck transmission wires erected by the defendant company over the Susquehanna River, the court commented that the transmission line

was a dangerous instrumentality and that the care to be exercised in a particular case must always be proportionate to the seriousness of the consequences which are reasonably to be anticipated as a result of the conduct in question. The defendant Company stated in its brief that: "The social value of the electrical industry's contribution to the public interest is beyond computation or description even though it may exact a certain toll of human life as its price." The court stated: "Accepting this statement as a basis for reflection, there is no reason, where preventable, that there should be any toll of human life." The court quoted from another Pennsylvania case to the effect that: "When human life is at stake, the rule of due care and diligence requires everything that gives reasonable promise of its preservation to be done, regardless of difficulties or expense," and concluded:

In comparison to the benefits of saving a human life, the cost of a few cans of paint and a few electric bulbs would be negligible. And since the defendant company is engaged in the very manufacture of creation of electric current, the cost of the current needed to supply the illumination would be as insignificant as the cost of a few bread crumbs in a bakery.

V. DEPENDENCE OF SOCIAL IMPACT EVALUATION  
ON THE SPECIFIC DECISIONAL CONTEXT

A. Relevance of Decisional Context Approach to APA

Great stress has been placed herein on the notion of decisional context for the purpose of demonstrating that:

- Any given, identifiable Effect (consequence or change) which may result from an existing activity or is a possible consequence of a proposed project or other action is likely to differ to some extent with respect to its probability and magnitude (in whatever dimensions which may be appropriate for measurement) in each specific decisional context.
- The degree of Social Desirability or Undesirability of such Effect (independent of the probability or magnitude of such effect in particular situations) will depend upon the concept or standard of social justice (scheme of social value weights and distribution) applied by the decisional entity (which may or may not be consistent with the notion or notions of social justice advanced by one or more of the affected participants contending in the particular decisional situation) and the concepts applied are likely to differ somewhat from one decisional context to another.
- The Social Impact (product of the probability X magnitude X social desirability) of the Effect will therefore likely differ in each specific decisional context.
- Even if the Social Impact of such Effect remains constant in various specific decisional contexts, the Social Significance (relative importance) of the Social Impact of such Effect is, nevertheless, subject to (perhaps likely to) shift with each specific decisional context for reason that the combination of Effects (and their associated beneficial and/or detrimental social impacts) to be "balanced" or "traded-off" will differ to some extent in each decisional context.

The discussion of social impact evaluation of effects to this point has focused primarily on judicial arena contexts. But clearly, the mode of determining the social impact and social significance of effects will differ somewhat among the

decisional arenas: judicial, legislative, regulatory, executive-administrative, etc. Courts are normally, though not always, concerned with existing controversies while legislatures, and frequently regulatory commissions, are concerned with evaluation of the social impacts and social significance of the effects of proposed actions or programs.

The institutional restraint on the judiciary's indisposition as well as incapacity (perhaps both analytical and jurisdictional) to perform total social impact assessments can be seen in the case of Boomer v. Atlantic Cement Co., wherein the court refused to consider the full public harm resulting from dirt, smoke, and vibration emanating from the cement plant, limiting the plaintiff's remedy to damages. The Court stated:

The nuisance complained of by the plaintiffs may have other public or private consequences, but these particular parties are the only ones who have sought remedies and the judgment proposed will fully redress them.

The Court observed that questions of "broad public objectives" must be left to the executive and legislative branches, apparently and perhaps justifiably assuming that pollution is a public problem with which the judiciary can deal only in a fragmentary, ad hoc way as suits are brought by private parties.

But even in decisional arenas and contexts in which total social impact evaluations of a given action must be made, constraints exist on the ability of such arenas to perform social cost/benefit analyses. This point has been put by

Secretary of HEW, Elliot L. Richardson, in "Choice: A Cruel Necessity" as follows:

There are, of course, severe limits on the practical use of evaluation and cost-benefit analysis. Such techniques may help us to choose the best way to use an additional \$1 million on homemaker services for the elderly or preschool education for disadvantaged children. They may even offer some basis for comparing the social return on one or another such investment. But a choice between homemaker services and preschool education cannot and should not rest only on this kind of analysis. Even though it could be shown that the investment in preschool education paid larger dividends for a longer future, our feelings toward the generation to which we owe our own existence and education cannot be fed into this kind of calculation.

The hard choices, in the end, are bound to depend on some combination of values and instincts--and, indeed, it is precisely because the content of choice cannot be reduced to a mathematical equation that we need the political forum to reach the final, most difficult decisions.

To recognize this, however, reinforces the importance of being as honest and explicit as possible in articulating the non-measurable considerations that transcend the limits of objective analysis. Only if these considerations are exposed to full view can we bring those whose expectations have to be deferred--or overruled--to accept the legitimacy of the process by which this was done. Only thus can we hope to reconcile the loser to losing and encourage the impatient to wait.

With respect to the mandate of §102(2)(B) of the NEPA of 1969, that techniques be developed for the rational consideration of "presently unquantified environmental values and amenities" in the public decision process, the import of the decisional context approach is that while empirical data and analytical techniques can contribute to this task, such evaluations are also heavily dependent on the decisional arena, the customary processes of decision in the particular arena, the

alternative actions available to the deciding entity, and the social values associated with the various alternatives.

Hence, the assertion that certain determinations are thrown into the "political process" when, presumably, the "limits of analysis" are reached does little to advance the anticipatory assessment function. Rather, this indiscriminate if not blatant mode of dismissing the usefulness of "demonstrative data" obscures the vast diversity of the decisional contexts which arise in the continuing operations of the public decision process and thus tends to inhibit efforts to examine the informational and analytical resources which may be available, depending upon such considerations as:

- The decisional arena and entity involved.
- The issue, problem, or analytical-assessment task presented.
- The participants affected by impending or proposed action.
- The alternative dispositions or courses of action available to the decisional entity.
- The social interests associated with the effects which would result from each alternative outcome.
- The techniques of inquiry available to clarify the consequences of each available alternative and to evaluate the social impacts of effects identified.
- The decisional processes customarily utilized or permissible in the arena for selecting a preferred alternative outcome.

While it is not ordinarily to be expected that a judicial context will involve a total social impact assessment of an existing or proposed project, it may nevertheless be persuasively

argued that every decisional action should consider (insofar as its authority and capabilities permit) the full social implications of its decisional outcomes. This notion is, in fact, the essential thrust of the assessment function. It also assumes that a relatively high level of analytical capability is available or can be developed to identify effects and to evaluate the social impact of such effects. In other words, such decisions are not to be abandoned to the turbulence of the "political process" without at least the benefit of clarification of the implications of alternative outcomes by application of the most reliable analytical procedures available. It would seem that the foregoing assumptions would underlie the implementation of an approach to environmental pollution such as that proposed in the 1971 Economic Report of the President.

While it might be tempting to say that no one should be allowed to do any polluting, such a ban would require the cessation of virtually all economic activity. Since society places a value both on material goods and on clean air and water, arrangements must be devised that permit the value we place on each to determine our choices. Additional industrial development, increased use of pesticides on farms, and a growing volume of municipal sewage mean dirtier water downstream and fewer opportunities for recreation. On the other hand, stricter rules for pollution control generally mean either higher taxes or higher prices for goods. What we seek, therefore, is a set of rules for use of the environment which balances the advantages of each activity against its costs in other activities foregone. We want to eliminate pollution only when the physical and aesthetic discomfort it creates and its damage to people and things are more costly than the value of the good things--the abundance of industrial or farm products and efficient transportation--whose production has caused the pollution.

This statement strongly suggests that social benefit/cost ratios are approximately determinable although it does not deal with the techniques for making such measurements. Further, it must be noted that in its plea that environmental quality not be over-emphasized to the detriment of other social interests, the statement hardly does more than hint that the evaluation of "advantages" and "costs" may differ considerably among affected participants, depending upon their concept of social justice. Nevertheless, the statement does convey the notion that the full implications of decisional outcomes should be identified and evaluated in contrast to an approach undertaking to eradicate a specific harm irrespective of consequences for other social interests. It also suggests the importance of context.

The significance of context and the need to look at the full implications of a given action is treated in depth by Professor R. H. Coase in his interesting article on "The Problem of Social Cost." Coase addresses the question of assessing social benefits and costs by emphasizing the divergence of views on this matter. In a rather extended discussion of the relevance of context to the analysis of social benefits and costs, Coase stresses in his analysis of the advisability of governmental intervention for handling the "problem of harmful effects" that "where the boundary line should be drawn . . . has to come from a detailed investigation of the actual results of handling the problem in different ways."

The relevance of decision context to social impact evaluation is vividly presented by the range and diversity of environmental noise situations wherein relief from existing noise intrusion is sought or a conscious effort is made to minimize noise intrusion in the future, whether from existing activities or proposed projects. Environmental noise situations provide a useful device for illustrating the implications of the specific decisional approach to social impact evaluation for reason that "noise" (unwanted or harmful sound) has the following characteristics among others:

- Noise has innumerable sources - both stationary and moving.
- Noise results in a broad range of physiological and psychological effects - some of which are extremely difficult to measure in terms of magnitude or of social undesirability.
- Various alternative means are available, depending upon the decisional situation, for the prevention of or alleviation of detrimental sound effects: abatement at the source, reduction of noise effects, and compensation for harm resulting from noise.

Consequently, decisional contexts involving the prime objective of avoiding, reducing, or compensating for adverse noise effects are extremely helpful in illustrating the principal notions discussed herein:

- The range and diversity of decisional contexts.
- The alternative courses of action available to the decisional entity based on the full characteristics of the decisional context.
- The techniques which might be applicable in each situation to determine the extent of the noise effect.

- The concepts of social justice advanced indicating the degree to which noise intrusion is a social harm (or that quietude is a social benefit) either in demonstrable terms or on a comparative basis with other societal values  
and indicating preferred abatement actions in terms of the degree of benefit and of cost and the distribution thereof.
- Evaluation of the social impacts of the noise intrusion effect based on the extent of the noise intrusion in the particular case and the concept of social justice (or social value scheme) accepted by the decisional entity.
- Modes of determining the relative social significance of the social impact of the noise effect in the particular context wherein other interacting effects result in impacts affecting other social interests.
- Summary of decisional approaches in legal-policy process for measuring the social impact and relative social significance of such social impacts of effects which are in varying degree "unquantifiable environmental amenities and values".

Like other effects which many if not most people consider harmful social-environmental intrusions, a wide variety of decisional mechanisms, ranging from private choice to public regulation, have been employed in making judgments on the social benefit of noise abatement. However, the framework of this discussion is tied to the formal, authoritative arenas of the public decision process and we look primarily to the outcomes of such arenas as manifesting social impact evaluations and social significance assessment. For example, was noise intrusion ignored or considered de minimis? If recognized, was such recognition given in the sense that the polluting source was ordered to cease operations, or to modify its activities in such manner as to reduce the noise intrusion to a "reasonable

level" depending upon the circumstances, or to compensate the injured claimant for harm incurred? A somewhat different set of questions must be asked with respect to proposed activities which may produce intolerable or annoying noise levels. For example, who would benefit by efforts to minimize noise? How would the cost be apportioned? Or what strategies (alternative means or combinations of means) are to be employed for noise abatement? In sum, what noise reduction objective can be achieved during what period of time through the use of what means with what distribution of benefits and costs to whom?

B. Specific Environmental Noise Abatement Contexts

The following decisional contexts are examples of actual environmental noise abatement situations with which the public decision process is or must be concerned. They should be considered, for present purposes, primarily with respect to the alternatives available to the decisional entity, the means by which the noise effects related to each alternative are to be measured, the techniques by which the social impacts of such noise effects are to be evaluated, and the techniques by which the social significance of the social impact of the noise effects (social detriment of the noise or social benefit of noise abatement) is to be assessed within the context of all the interacting effects (and their social impacts) involved in the decision. Consider:

1. Judicial Arena:

- . A motorist has been charged with violation of a state statute (Mufflers: Prevention of Noise) which prohibits "excessive or unusual noise," a typical "subjective" standard. The defendant contends that a subsequent state statute relating to vehicle noise which established "quantitative maximum permissible decibel levels necessarily superceded the subjective prescription since it was a "conscious attempt of the Legislature to supply the missing objective standard of the precise quantity of noise prohibited." Assuming that no explicit statutory guide is available and that the legislative history is ambiguous, what alternatives would seem to be available to the court and what might be the considerations in preferring one to the others?
- . A local school board brings a suit for damages against the State Highway Department for interference with the conduct of classes in a highschool by traffic noise from a recently completed interstate highway segment. The noise level has increased from 60 dB to 80 dB, interference with normal speech commencing at the 65-70 dB level. The Highway Department has paid the School Board a "fair market" price for that part of the school property actually "taken" for the highway. Now, assuming that the court were disposed to consider the noise intrusion as a compensable harm (many courts do not, considering noise as a necessary side-effect of a progressive industrial society and therefore to be shared by all without complaint), how might the court determine the level of damages or otherwise devise a satisfactory remedy to avoid or compensate for the harm to the educational process and possibly to individuals? What are some possibilities? Abate the noise at the source by relocating the highway - or the school? Reduce drastically the speed limit on the highway? Require the Highway Department to erect a two mile buffer on the right-of-way to reduce the noise effects? Compensate the School Board in the amount necessary for sealing the school building and installing air conditioning? Compensate the School Board for the harm inflicted directly on the "educational process" and individual plaintiffs, if any, for physical and psychological harm incurred by reason of the noise? Apart from the consideration that some of these alternatives are beyond the jurisdiction of the court to enforce, which of these techniques of abatement at the source, reduction of noise effects, and compensation for harm done are feasible in the sense of being operationally measurable? Unless the court considers the noise intrusion de minimis or perhaps too speculative to

be assigned a level of damages, it must fashion some remedy. If the court should undertake to compensate for the interference with the educational process and harm to individuals, how far in the future would this be projected? More importantly, how could this evaluation be made for any specific period of time? How might the social value orientations of the various parties affected bear upon the choice of an alternative remedy - or the amount of damages? How might the concepts of social justice entertained by the presiding judge enter into the selection of a suitable alternative? What effect might notions of social justice as recognized in somewhat similar past cases in the same judicial system have on the selection of an alternative remedy?

2. Regulatory Arena:

- §611, a 1968 amendment to the Federal Aviation Act of 1958 (Abatement of Aircraft Noise and Sonic Boom), requires the Administrator of FAA, in the process of setting aircraft noise standards, to take into account whether any proposed standard would be "consistent with the highest degree of safety in air commerce or air transportation in the public interest" and to "consider whether any proposed standard . . . is economically reasonable, technologically practicable, and appropriate for the particular type of aircraft, aircraft engine, appliance or certificate to which it will apply." Here the social objective of reducing aircraft noise is clearly circumscribed by considerations of safety, cost, and technological feasibility. Unless the decision on a given program of noise reduction (as for example, engine nacelle retrofit proposals) is to be left to a naked adversarial process, how does the FAA proceed to decide on the new standards? Does it take "absolutes" such as no impairment in current safety standards, or no cost in excess of \$1 billion, or what is technologically practicable in five years and then see what can be done, if anything, for noise reduction? Or does it set a minimum noise reduction goal to be achieved within five years without special regard to safety, cost, and present forecasts as to technological feasibility? Or does it attempt to determine "reasonable" parameters with respect to safety, cost, and technology and see what this permits for noise reduction? Whatever the process of decision, some evaluation of the social significance of noise reduction is clearly made. How can the available "demonstrable data" assist in reducing the area of uncertainty as to safety, cost, and technological practicability and provide a reasonably accurate range of options as noise reduction goals?

3. Metropolitan Administrative Arena:

- If a local governmental entity wishes to undertake a deliberate program of noise reduction around an existing airport, how does it proceed to design an optimum or suitable strategy? Modification alternatives might include?
  - Change in aircraft operations as with the use of preferential runways - or shifting preferential runways
  - Traffic reallocation among airports if more than one in the metropolitan area
  - Airport redesign as with runway length and direction
  - Insulation of structures on adjacent land
  - Encouragement of compatible land use through economic, legal, and political incentives
  - Selective relocation of schools and other noise-sensitive community activities
  - Compensation for noise intrusion on public activities and for harmful effects on individuals

It is readily apparent from the HUD Metropolitan Aircraft Noise Abatement Policy Study (MANAPS) that literally dozens of alternative strategies might be posited on the basis of the above noted types of modifications and combinations thereof. These will involve different economic costs, different levels of noise reduction, different degrees of disruption and inconvenience, different time frames for implementation, and varying degrees of legal, institutional, and social obstruction. It is necessary to ask: Just what social benefit is to be placed on noise reduction in the particular noise abatement context? What procedure might be applied in order to design an optimum or acceptable strategy? Will not the choice of strategy be in large part determined by the social significance attributed to the noise intrusion, or conversely, to noise reduction? What "demonstrable data" is available for establishing the limiting economic, legal, political, technological, and public health parameters within which adjustment can be made as to what degree of noise abatement is compatible with the resulting social impacts of other effects of this action? To what extent can such parameters be established by "demonstrable data" which would satisfy a general community consensus? To what extent are the effects calculable and to what extent must mechanisms for registration of social preferences be employed?

**4. Congressional-Legislative/Administrative Arena:**

One of the most challenging noise social impact evaluation tasks has been considered in the Congressional legislative arena (with eventual attention by the Environment Protection Agency, Office of Noise Abatement and Control with respect to implementing regulations and standards) in connection with the establishment of proposed Federal noise standards in areas other than aircraft noise abatement. Since most environmental noise regulation has traditionally been at the local level through means of specific ordinances or truncated codes and by limited areas of State regulation, Federal noise standards could definitely have serious preemptive implications for State and local noise regulation. How can the EPA/ONAC, pursuant to a Congressional mandate to establish Federal standards, develop a plausible rationale for setting standards for a variety of mechanisms, products, and devices at prescribed decibel levels (and to be applied in prescribed manner) so as to satisfy the disinterested observer that considerations of the need for uniform national regulation in certain areas is appropriately balanced against the need for flexibility of regulation to accommodate a wide diversity of local conditions? Here the EPA/ONAC must be concerned with a vast multiplicity of noise sources and noise effects; with Federal, State and local legislative, regulatory, and judicial entities which will initiate and enforce Federal or complementary state and local regulations for hundreds of particularized noise situations; with a potentially vast number of diverse decisional contexts involving any of numerous Federal, State, and local regulations, multiple decisional arenas with different alternative courses of action available, varying patterns of participants with different social justice perspectives, and with each issue or problem or proposed action arising under different sets of contextual conditions including the mix of interacting social interests. Will not the EPA/ONAC standards necessarily encompass a variety of alternative approaches to making social impact evaluations of noise effect, further involving different combinations of "demonstrable data" and adversarial system? How might a provision in the Federal law prohibiting States from setting more stringent noise emission standards from new vehicles than those prescribed by EPA/ONAC regulations affect the alternative strategies available to ONAC re setting Federal standards? How might a provision in the Federal law leaving control over the use, operation, and movement of vehicles and other devices to states and municipalities affect the alternatives available to ONAC?

## VI. IMPLICATIONS OF SPECIFIC DECISIONAL CONTEXT APPROACH FOR THE ANTICIPATORY ASSESSMENT FUNCTION

The decisional context approach to anticipatory project assessment has certain implications for the assessment function. The decisional context analysis has implications for the assessor whether the situation is one of assessing a proposed project or projects presented to the assessor or of a sponsoring entity attempting to determine the "reasonable expectations" for a useful assessment outcome among several proposals when only a limited number can be assessed. The primary implication of the decisional context approach is that the assessing entity must carefully consider the specific assessment situation it plans to undertake with special attention to the diversity of decisional contexts which will be encompassed in the assessment. This factor is of particular importance to assessment efforts of proposed actions which must take into account the continuing assessment, prescription, and application efforts of multiple decisional entities in the various decisional arenas with respect to the implementation of the proposed action. This assessment situation is graphically illustrated by the action to establish Federal noise standards for a variety of mechanisms, products, and devices which will be operated in a wide spectrum of diverse and unique noise environments.

Implications for anticipatory project assessment flow from a consideration of every element of the decisional context:

- The nature of the issue, or problem posed or action proposed
- The character of the participants: perspectives, claims, and resources
- The decisional entity within a given decisional arena: authority and constraints
- The alternatives available to the particular decisional entity to provide relief, set standards, sanction general authorization to decide or set standards, or to otherwise dispose of the issue or problem
- The alignment by the decisional entity of the claims of participants with the available alternative courses of action
- The alignment of available courses of action with the means of identifying effects of the decision outcome and the measurement of the probability and magnitude of such effects
- The social impact evaluation of the effects identified including means of determining and applying relative degrees of social desirability or undesirability to the social interests associated with each identified effect
- The social significance assessment of any or all interacting effects and their social impact so as to arrive at an operational (though approximate) social cost/benefit outcome

These various component elements and tasks are obviously interrelated. The nature of the issue and the authority of the deciding entity will directly affect the available alternatives. The claims of the participants will influence the selection of the alternative dispositions of the issue or

action which will be examined. The perspectives of the participants, including their social value orientation (asserted concepts of social justice), may have considerable influence on the degree of social desirability or undesirability attached to social interests related to the effects flowing from the decision. The claims of the participants will assist in identifying effects and in providing means of giving some measurable magnitude to such effects. From these data, which will be the resultant of some mix of "demonstrable data" and "adversarial system," social impact evaluations can be made and social significance assessments can be derived from a comparative evaluation of the social impacts.

Some of the more elementary though critical implications of the specific decisional context approach for the anticipatory assessment function are the following:

1. The greater the number of diverse problem contexts encompassed in a proposed action or project, the less adequate the assessment is likely to be for reason that the probability and magnitude of any given effect will differ with the context, the social desirability or undesirability of the effect may differ, and hence the social impact of the effect among contexts will differ. Further, the relative social significance of the social impact will differ among contexts since a different mix of effects (reinforcing or competing) and their associated social interests will be involved in the various contexts. Hence, assessing the extent to which a given uniform, standard action will produce an optimum social impact for the aggregate of problem contexts will tend to increase in uncertainty as the diversity of problem and decisional contexts increases. However, the nature of the proposed action may also be a factor in the sense that if the effort is merely marginal, then the action might be ignored

as of minimal effect, or if sufficiently drastic, it might in fact eliminate the "problem" in substantially all of the contexts. The most difficult assessment task would seem to arise where the contemplated action will be substantial to the alleviation of the problem but not a definitive solution.

2. A corollary to point # 1 is that the greater the uniformity of elements in the decisional contexts encompassed in the scope of the defined assessment task as to:
  - . The decisional arena
  - . The affected participants and their claims, social value perspectives, and resources
  - . The issue, problem, or action presented
  - . The necessary, probable or possible effects of the decisional outcome
  - . The social impacts of such effectsthe more likely that the assessment outcome will be adequate.
3. Since assessment situations will frequently not be characterized by the uniformity of decisional contexts noted in point #2, the closer an assessment and the follow-on planning function can be linked to identifiable "predominant effects environments" (major recurring effects having both beneficial and detrimental social impacts with respect to actions or projects such as highways, airports, buildings, power plants, etc.) the more likely that the assessment outcome will prove useful in the public decision process.
4. Closely aligned to point #3 is the implication that when dealing with an assessment situation which involves highly diverse problem/decisional contexts, the management of the assessment task will require that attention be concentrated on the most pronounced effects (detrimental and beneficial), on actions or projects to promote the most beneficial effects, and on actions or project configurations which will minimize or eliminate the most offensive adverse effects. An optional approach is to aggregate rather than fragment effects for the purpose of assessment.
5. One criterion of the adequacy of the assessment/planning function which evolves from the specific decisional

approach is the degree to which the number, magnitude, and intensity of potential problem contexts (conflicts, issues, enforcement and management tasks, etc.) is reduced or minimized. This suggestion raises another dimension of questions which must be considered by an assessment entity undertaking the evaluation of a project or an action which will impinge upon a number of diverse problem/decisional contexts. For example, the reduction of certain problem areas as by an action to eliminate the primary cause of the problem will normally involve greater costs than a more modest effort to moderate the sources of stress and conflict. Hence, the question will be posed as to whether it is preferable to eliminate the potential conflicts in the initiation or design stage or to accept potential conflicts and their accompanying costs through time. Depending upon the social problem area involved, it may be less expensive to compensate for harm resulting from a project operation over time than to avoid the adverse effects by initial project design.

6. One clear implication of the specific decisional context approach is that the assessing entity (especially an inclusive-oriented entity which is undertaking to assess the full scope of social consequences for all affected participants and social value-institutional processes) is that the assessment must be directed to the operational alternatives available to the decisional entity which is expected to utilize the assessment outcome. Social impacts of effects (or social cost/benefit evaluations) of alternatives which are not available to the relevant decisional entity or entities have little significance for the public decision process. Put otherwise, assessments must be sensitive to the informational and analytical needs of the institutional structure which will consider the assessment outcome.
7. It is also evident that the specific decisional context approach with its implications for the relevance of available/operational alternatives must be sensitive to the fullest range of analytical and implementation techniques. If the assessment task involves diverse and complex problem/decisional contexts, then strategies of multiple means applied through time may be far more relevant action or project configuration alternatives to be considered

than a single means (such as uniform standards or a specific project). In brief, the action or project should be viewed as an implementing process rather than a static prescription.

8. A further implication of point #7 is that program and project configurations designed for introduction into diverse problem contexts will often be strategies involving multiple means applied through time in some coordinated fashion and further involving complex process-institutional decisional structures. This basic strategic alternative will in fact include a variety of secondary alternatives, all directed toward a prescribed social objective. Techniques of inquiry and means of measuring the probability and magnitude of the primary effect sought as well as accompanying effects may differ widely with each of these sub-alternatives. Certain ones will be susceptible to measurement by empirical data, analysis, and computational techniques within varying limits. Others may be determined primarily by adversarial processes involving clashing expert witnesses and even bare assertions where there is a scarcity of hard data. Even in instances where "demonstrable data" can be applied to approximate the actual probability and magnitude of effects, affected participants will differ on the degree of social desirability or undesirability of a given effect. Both the measure of effects and the level of social desirability accorded such effects (providing social impact evaluation) will tend to differ with the institutional structures, including decisional processes, which are applied in social impact evaluation. In other words, the various sub-alternatives of the basic strategy may be assessed in different decisional contexts and therefore produce different social impact evaluations (for reason of diverse social value orientations) even if the probability and magnitude of a given effect is the same in each context. In any event, the lack of "demonstrable data" to fully satisfy a consensus of affected participants or the decisional entity with respect to the measurement of effects, let alone to settle the level of social desirability of such effects, will inevitably result in application of variations of adversarial system to both the assessments and decisions made with respect to each sub-alternative. In view of the fact/value elements of all such public decision situations and the usual

lack of sufficient "demonstrable data" to even fully develop the factual component (measurement of effects), resort to adversarial technique can be a most useful means of making such determination, even if the resultant is not eventually proven to be entirely "scientifically" correct. In complex assessments, therefore, the adoption of strategy program configurations in place of single actions or projects can provide a continuing feedback through time, making use of both new "demonstrable data" and the iterative outcomes of adversarial system so as to maintain continuing monitoring and evaluation. In such situations it will probably be advisable to combine rational decisional approaches as represented by an initial total social impact assessment of alternative program strategies with the incremental approach as represented by follow-on assessments of the affected decisional entities and graduated program implementation through time. The anticipatory assessment is the selection of strategy, a strategy implemented and continuously assessed through time.

9. One further implication of the specific decisional context approach is that we can expect a steady proliferation of assessment methodologies which are tailored to the particular problem and action/project areas of individual agencies, offices, and commissions at the Federal, State, and local levels. Indeed, this process is already well along. While continuous efforts will be made to bring some useful degree of commonality to assessment procedures, the vastness and diversity of assessment situations and decisional contexts will inevitably generate a corresponding differentiation in approach.
10. Finally, implicit if not fully explicit in the foregoing noted implications of the Specific Decision Context approach is the proposition that there is no single "true" or "right" social cost/benefit assessment of a given project configuration but essentially unlimited possibilities for social cost/benefit assessment outcomes. These differing outcomes will vary with such factors as the effects identified, the probabilities assigned to such effects, the techniques employed for the measurement of their magnitude, and the concept or standard of social justice (social value weights and distribution) utilized to calculate the social impacts of the various effects. Put other-

wise, there are infinite possibilities for calculating a social cost/benefit assessment outcome for a given project configuration even though in practice the number may be reduced to a relatively few alternatives which would receive serious attention in the public decision process.

These various implications tend to emphasize the complexity of the anticipatory project assessment function. The purpose, however, has not been to suggest that some project assessments are simply too difficult to undertake. There is really no alternative but to perform such assessments if we wish to maintain some degree of control over the direction and rate of social change. The complications of the public decision process are stressed as a continuing reminder that it is a complex world and that assessment entities should be fully aware of this complexity even though various resource (technical, process, institutional) constraints preclude a fully adequate total social impact evaluation in most instances. In this connection it should be recognized that the foregoing comments by no means cover the full range of factors which should be taken into account in a provisional determination of the "reasonable expectation" of obtaining an adequate outcome from a given assessment. This is a much broader topic. Comments in this section deal only with some of the implications for anticipatory project assessments flowing from the specific decisional context approach to the assessment function.

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16. Abstracts The purpose of this paper is to explore some of the implications of the <u>Specific Decision Context</u> approach to Anticipatory Project Assessment. More specifically, it is hypothesized that with respect to any given <u>effect</u> of a proposed project or action (mobility, job opportunities, air pollution, population distribution, etc.) such effect will likely differ in probability and/or magnitude from one decisional context to another; that the social desirability or undesirability of a given effect is a function (will differ with) each specific decisional context; that therefore the <u>social impact</u> of such effect will in all likelihood differ with each specific decisional context; and that the <u>social significance</u> of even the same social impact of a given effect will vary from one decisional context to another--when such social impact interacts with (competes with or reinforces) the social impacts of other effects. It also follows from this analysis that the respective roles of scientific method (demonstrable data) and adversarial system will not only differ with each specific decisional context but with each alternative course of action available to the decisional entity in each specific context. One fur-			
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